

Development of fuel ammonia combustion technology in glass melting furnaces

The AGC logo is located in the top right corner of the slide. It consists of the letters 'AGC' in a bold, blue, sans-serif font. The letter 'A' is blue, 'G' is blue, and 'C' is blue. There is a small red square positioned between the 'G' and 'C'.

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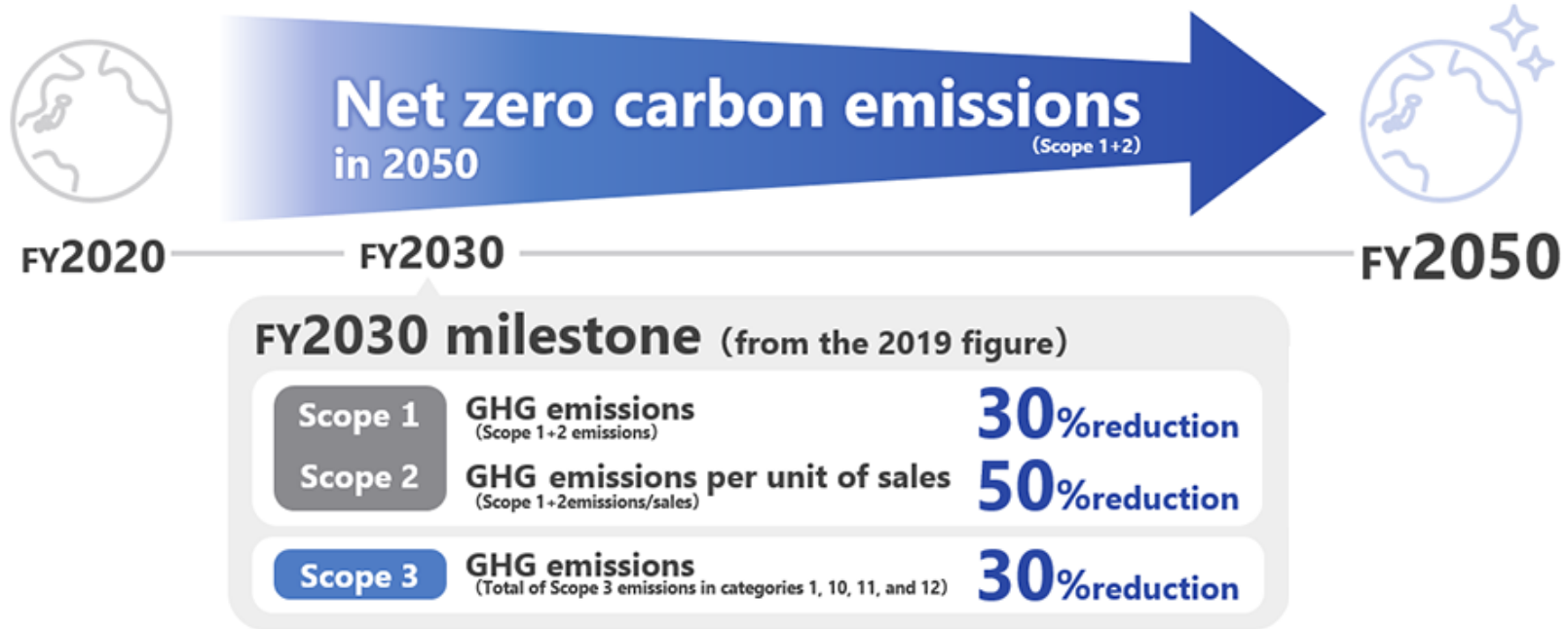
AGC Inc.

September 29th ,2023

Your Dreams, Our Challenge

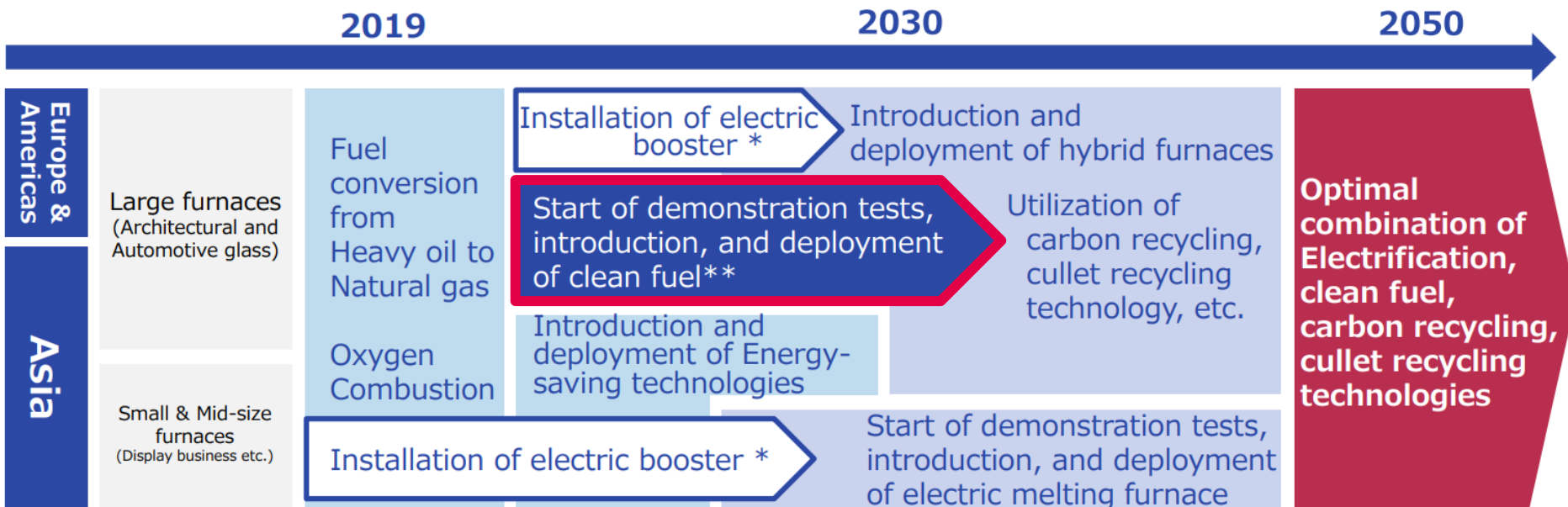
Net zero carbon emissions in 2050

AGC has set a goal of achieving net-zero carbon emissions in 2050. As milestones, a 30% reduction in GHG emissions in Scope1 and Scope2.



Technology Roadmap for Reducing GHG Emissions in Float Glass Melting Process

- Toward 2050, AGC aims to achieve the target by combining multiple technologies with a focus on electrification.
- We are focusing on ammonia which does not emit GHG during combustion.



*Energenized auxiliary heating

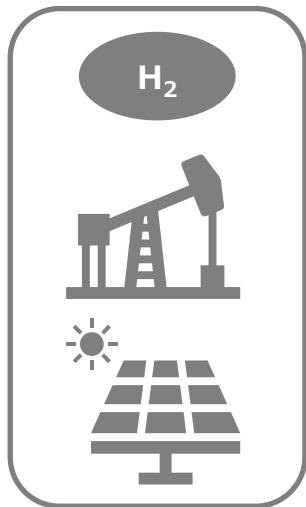
**Ammonia, Hydrogen, etc.

Ammonia as Fuel

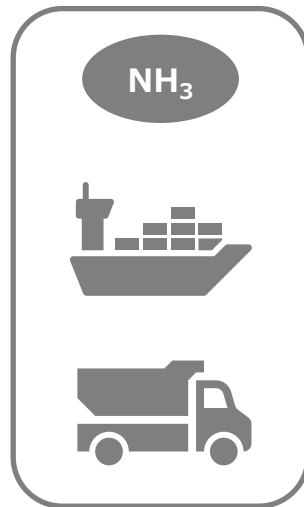
Ammonia is expected to be a carrier for hydrogen and does not directly generate CO₂ even when burned.

Technology development is necessary to overcome challenges such as low flame temperature and the generation of NO_x from the fuel source.

Hydrogen production



Transport as Ammonia

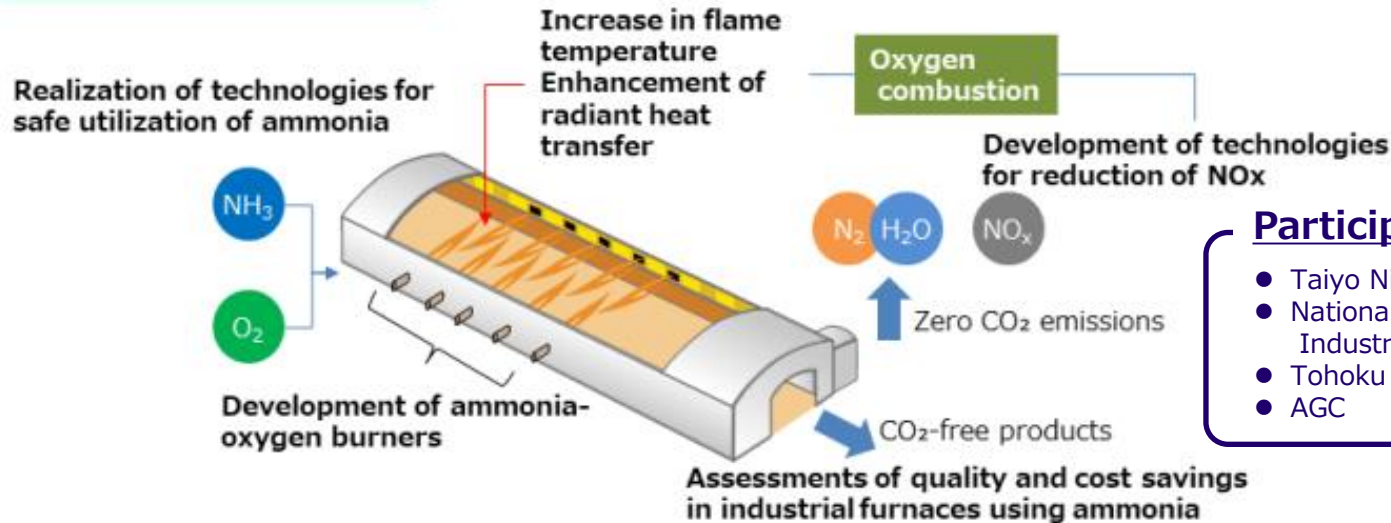


Industrial use as Ammonia



AGC has been participating NEDO project on fuel ammonia for industrial furnaces. Attempting to introduce ammonia fuel into glass melting furnaces through the project.

Illustration of project



Participating Organization

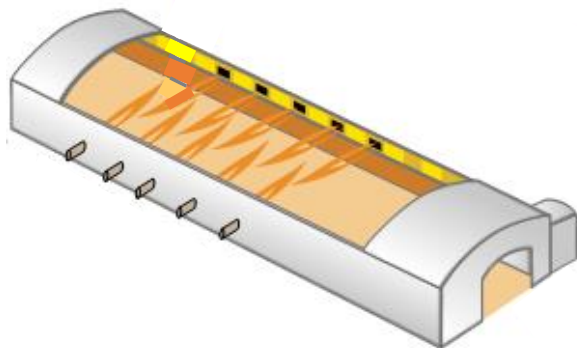
- Taiyo Nippon Sanso Corporation
- National Institute of Advanced Industrial Science and Technology
- Tohoku University
- AGC

Illustration of industrial glass-melting furnace using ammonia as fuel

Reference: <https://www.nedo.go.jp/>

Ammonia combustion test in a glass melting furnace

In June of this year, AGC conducted world's first demonstration test of ammonia combustion in a glass melting furnace that produces architectural glass.



Burners commonly used (several pairs)

+

Burners for Ammonia (200kW, one pair)

NOx concentration remained below the regulated value.

We have taken the first step towards introducing ammonia fuel.



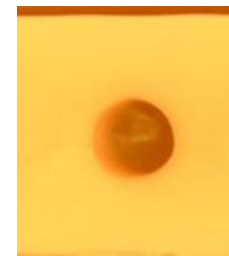
Glass melting furnace
in which this demonstration test was conducted



Storage tank for ammonia fuel



Natural gas 100%



Ammonia 100%

Inside a glass melting furnace burning with a specialized burner

END

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